Fluor Hanford WSCF Analytical Chemistry P.O. Box 1000 Richland, WA 99352 Telephone 373-7495 Telefax 372-0456

FLUOR

Memorandum

M8141-SLF-06-199

To:

D. L. Klages

H8-40 Date:

August 1, 2006

From:

S. L. Fitzgerald, Manager

WSCF Analytical Chemistry

cc:

S. J. Trent (FH)

A0-21

T. F. Dale

S3-30

H. K. Meznarich

S3-30

P. D. Mix

S3-30

J. E. Trechter

S3-30

File/LB

(Above w/attachments)

Subject:

FINAL RESULTS FOR 200-UW-1 OPERABLE UNIT TRENCH – SAMPLE DELIVERY

GROUP WSCF20060704 – SAF NUMBER R06-013

Reference:

- (1) 200-UW-1 Operable Unit Support Activities Sampling Letter of Instruction, D&D-27876, Rev. 0, dated December 14, 2005
- (2) HNF-SD-CD-QAPP-017, Rev. 7, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains a narrative (Attachment 1) for sample delivery group WSCF20060704, the analytical results (Attachment 2), and the sample receipt information (Attachment 3).

SLF/cmj

Attachments 3





M8141-SLF-06-199

ATTACHMENT 1

NARRATIVE

Consisting of 4 pages Including cover page

Sample Delivery Group	WSCF20060704
Sample Matrix	SOLID
Sample Visual	N/A
SAF Number	R06-013
Data Deliverable	Summary Report

Introduction

Two (2) soil samples (B1J2T3-A and B1J373-A) from the 200-UW-1 Operable Unit Trench were received at the WSCF Laboratory on July 3, 2006. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the 200-UW-1 Operable Unit Letter of Instruction, referenced in the cover letter.

All samples were taken using the Multi-Increment Sampling Program, which requires the entire sample submitted to be analyzed.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

Analytical Methodology for Requested Analyses

Refer to WSCF Method References Report, pages 11, for a complete listing of approved analytical methods used.

Radiochemistry Comments

There are no holding times associated with WSCF radiochemical methods.

Uranium Isotopic – A Blank, Laboratory Control Sample and Sample Duplicate were analyzed with this batch of less than 20 samples. See page 12 for QC details. Analytical Note:

 Duplicate Relative Percent Difference (RPD) results for U-234 and U-238 on sample B1J2T3-A are outside acceptance limits. This is attributed to in homogeneity of the soil matrix.

All other QC controls are within the established limits.

Plutonium Isotopic - A Blank, Laboratory Control Sample and Sample Duplicate were analyzed with this batch of less than 20 samples. See page 13 for QC details. All QC controls are within the established limits.

Amercium-241 – A Blank, Laboratory Control Sample and Sample Duplicate were analyzed with this batch of less than 20 samples. See page 14 for QC details. All QC controls are within the established limits.

	Radiochemical	Radiochemical Tracer Percent Recovery										
.Sample Stimber	istorthine											
Americium-243												
BLANK		Am-243	83.57%									
LCS		Am-243	88.04%									
B1J2T3-A	W060001851	Am-243	86.03%									
B1J2T3-A (Dup)	W060001851	Am-243	86.24%									
B1J373-A	W060001852	Am-243	81.36%									
Plutonium-242												
BLANK		Pu-242	102.38%									
LCS		Pu-242	98.87%									
B1J2T3-A	W060001851	Pu-242	83.90%									
B1J2T3-A (Dup)	W060001851	Pu-242	88.54%									
B1J373-A	W060001852	Pu-242	77.49%									
<u>Uranium-232</u>												
BLANK		U-232	75.85%									
LCS		U-232	57.53%									
B1J2T3-A	W060001851	U-232	84.16%									
B1J2T3-A (Dup)	W060001851	U-232	49.68%									
B1J373-A	W060001852	U-232	76.05%									

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

John E. Trechter

WSCF Client Services

Abbreviations

Hg - mercury

IC – ion chromatography

ICP - inductively coupled plasma

ICP/AES - ICP/atomic emission spectroscopy

John & Trester

ICP/MS – ICP/mass spectrometry

Total U - total uranium

AT/TB - total alpha/total beta

AEA - Alpha Energy Analysis

WTPH-G - Total Hydrocarbons-Gasoline

Am - americium

Cm - curium

Pu – plutonium

Np - neptunium

GEA - gamma energy analysis

H3 - Tritium

Sr - Strontium 89, 90

WTPH-D - Total Hydrocarbons-Diesel

TSS - Total Suspended Solids

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ATTACHMENT 2

ANALYTICAL RESULTS

Consisting of 12 pages Including cover page

WSCF ANALYTICAL RESULTS REPORT

for

PROJECT HANFORD MANAGEMENT COMPANY RICHLAND, WA 99354

Attention: DL Klages

Analytical:

Client Services: (

lu Trediter John Torechter

All results are reported on an "as received" basis unless otherwise noted in the comment section.

CONTROLLED USE INFORMATION: The recipient of this report has the responsibility to protect and safeguard the requested information from unauthorized disclosure or misuse. This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. WSCF will not identify analytical reports as Official Use Only (OUO) or Sensitive. This classification must be determined by the owner of the report.

Report#: 20060704 Report Date: 31-jul-2006

Report W005/ver. 1.2

PROJECT HANFORD MANAGEMENT COMPANY

WSCF ANALYTICAL RESULTS REPORT

Group #: 20060704 Attention: DL Klages

		U									
					WSCF						
Sample #	Client ID	CAS#	Test Performed	Matrix	Method	RQ	Result	Unit	DF	MDL	Analyze Sample Receive
Radioc	hemistry				-						
W060001851	81J2T3-A	14596-10-2	Am-241 by AEA	SOLID	LA-508-471	U	0.0120	pCi/g	1.00	0.075	07/27/06 04/11/06 07/03/06
W060001851	B1J2T3-A	E,T,C	Am-241 by AEA Total Cntg Error	SOLID	LA-508-471		350	%	1.00	0.0	07/27/06 04/11/06 07/03/06
W060001851	B1J2T3-A	13981-16-3	Pu-238 by AEA	SOLID	LA-508-471	U	0.0180	pCi/g	1.00	0.083	07/27/06 04/11/06 07/03/06
W060001851	B1J2T3-A	E,T,C	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-471		270	%	1.00	0.0	07/27/06 04/11/06 07/03/06
W060001851	B1J2T3-A	PU-239/240	Pu-239/240 by AEA	SOLID	LA-508-471	U	9.10e-03	pCi/g	1.00	0.024	07/27/06 04/11/06 07/03/06
W060001851	B1J2T3-A	E,T,C	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-471		160	%	1.00	0.0	07/27/06 04/11/06 07/03/06
W060001851	B1J2T3-A	13966-29-5	U-234 by AEA	SOLID	LA-508-471		0.400	pCi/g	1.00	4.9e-03	07/20/06 04/11/06 07/03/06
W060001851	B1J2T3-A	E,T,C	U-233/234 AEA Total Cntg Error	SOLID	LA-508-471		26.0	%	1.00	0.0	07/20/06 04/11/06 07/03/06
W060001851	B1J2T3-A	15117-96-1	U-235 by AEA	SOLID	LA-508-471		0.0470	pCi/g	1.00	1.6e-03	07/20/06 04/11/06 07/03/06
W060001851	B1J2T3-A	E,T,C	U-235 by AEA Total Cntg Error	SOLID	LA-508-471		34.0	%	1.00	0.0	07/20/06 04/11/06 07/03/06
W060001851	B1J2T3-A	24678-82-8	U-238 by AEA	SOLID	LA-508-471		0.380	pCi/g	1.00	1.4e-03	07/20/06 04/11/06 07/03/06
W060001851		E,T,C	U-238 by AEA Total Cntg Error	SOLID	LA-508-471		27.0	%	1.00	0.10	07/20/06 04/11/06 07/03/06
W060001852	B1J373-A	14596-10-2	Am-241 by AEA	SOLID	LA-508-471	U	2.80e-03	pCi/g	1.00	2.9e-03	07/20/06 04/11/06 07/03/06
W060001852	B1J373-A	E,T,C	Am-241 by AEA Total Cntg Error	SOLID	LA-508-471		110	%	1.00	0.0	07/20/06 04/11/06 07/03/06
W060001852	B1J373-A	13981-16-3	Pu-238 by AEA	SOLID	LA-508-471	U	-4.40e-04	pCi/g	1.00	3.3e-03	07/20/06 04/11/06 07/03/06
W060001852	B1J373-A	E,T,C	Pu-238 by AEA Total Cntg Error	SOLID	LA-508-471		200	%	1.00	0.0	07/20/06 04/11/06 07/03/06
W060001852	B1J373-A	PU-239/240	Pu-239/240 by AEA	SOLID	LA-508-471		1.30e-03	pCi/g	1.00	1.2e-03	07/20/06 04/11/06 07/03/06
W060001852		E,T,C	Pu-239/240 AEA Total Cntg Err	SOLID	LA-508-471		120	%	1.00	0.0	07/20/06 04/11/06 07/03/06
W060001852		13966-29-5	U-234 by AEA	SOLID	LA-508-471		0.0230	pCi/g	1.00	4.6e-03	07/20/06 04/11/06 07/03/06
W060001852		E,T,C	U-233/234 AEA Total Cntg Error	SOLID	LA-508-471		40.0	%	1.00	0.0	07/20/06 04/11/06 07/03/06
W060001852		15117-96-1	U-235 by AEA	SOLID	LA-508-471	U	2.70e-03	ρCi/g	1.00	4.0e-03	07/20/06 04/11/06 07/03/06
WQ60001852		E,T,C	U-235 by AEA Total Cntg Error	SOLID	LA-508-471		110	%	1.00	0.0	07/20/06 04/11/06 07/03/06
W060001852	-	24678-82-8	U-238 by AEA	\$OLID	LA-508-471		0.0200	pCi/g	1.00	1.4e-03	07/20/06 04/11/06 07/03/06
W060001852		E,T,C	U-238 by AEA Total Cntg Error	SOLID	LA-508-471		41.0	%	1.00	0.10	07/20/06 04/11/06 07/03/06

MDL = Minimum Detection Limit

U - Analyzed for but not detected above limiting criteria.

RQ=Result Qualifier

DF=Dilution Factor

Report W005/ver. 1.2

PROJECT HANFORD MANAGEMENT COMPANY

^{* -} Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF ANALYTICAL COMMENT REPORT

Attention:

DL Klages

Group #:

20060704

Client ID Sample #

Lab Area

Test

Comment

VALGROUP

W080001851-1852/U234 duplicate is flagged for poor RPD. W060001851/U238 duplicate is flagged for poor RPD. Both flags are due to the sample not being homogeneous. Imh

Lab Areas:

VALGROUP - Group Validation LOGSAMP - Login for Sample

VALTEST - Test Validation LOGTEST - Login for Tests TESTDATA - Test Data Entry

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WSCF TENTATIVELY IDENTIFIED PEAK REPORT

Attention: **Project Number** Group #:

20060704

Client ID

Sample #

Test Name

Peak Name

CAS#

RT

RQ

Result

Units

RQ=Result Qualifier

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WSCF METHOD REFERENCES REPORT

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP HEIS PUISO_IE_PRECIP_AEAPlutonium by Alpha Energy Analysis

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at \ap006\aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf. This document includes on-line links to full-text versions of the procedures and methods, where available.

Report Date: 31-jul-2006 Report#: 20060704 Report W_005M/1

SDG Number: 20060704

Matrix: SOLID

Test: Uranium Isotopics by AEA

SAF Number: R06-013 Sample Date: 04/11/06 Receive Date: 07/03/06

QC Type	Analyte	CAS#	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ	

Lab ID		AUTH CAMPIE								
RAICE	H QC ASSOCIATED	WITH SAMPLE								
DUP	U-234 by AEA	13966-29-5	6.0e-01	40.000	RPD	07/20/06	0.000	20.000	•	
DUP	U-235 by AEA	15117-96-1	5.5 e -02	15.686	RPD	07/20/06	0.000	20.000		
DUP	U-238 by AEA	24678-82-8	5.5e-01	36.559	RPD	07/20/06	0.000	20.000	•	
Lab ID		MITH CAMDIE								
BATCI	H QC ASSOCIATED		1 5- 02	42 10E	8 9 0	07/20/08	0.000	20.000	•	
BATCI DUP	H QC ASSOCIATED U-234 by AEA	13966-29-5	1.5e-02	42.105	RPD RPD	07/20/0 6	0.000 0.000	20.000 20.000	•	
BATCI DUP DUP	H QC ASSOCIATED U-234 by AEA U-235 by AEA	13966-29-5 15117-96-1	U1.0e-03	n/a	RPD	07/20/06	0.000	20.000	•	
BATCI	H QC ASSOCIATED U-234 by AEA	13966-29-5							•	
BATCI DUP DUP	H QC ASSOCIATED U-234 by AEA U-235 by AEA U-238 by AEA	13966-29-5 15117-96-1	U1.0e-03	n/a	RPD	07/20/06	0.000	20.000 20.000	•	
BATCI DUP DUP DUP	H QC ASSOCIATED U-234 by AEA U-235 by AEA U-238 by AEA	13966-29-5 15117-96-1	U1.0e-03	n/a	RPD	07/20/06	0.000	20.000	•	
BATCI DUP DUP DUP BATCI	H QC ASSOCIATED U-234 by AEA U-235 by AEA U-238 by AEA H QC	13966-29-5 15117-96-1 24678-82-8	U1.0e-03 2.0e-02	n/a 0.000	RPD RPD	07/20/0 6 07/20/06	0.000 0.000	20.000 20.000	•	
BATCI DUP DUP DUP BATCI BLANK	H QC ASSOCIATED U-234 by AEA U-235 by AEA U-238 by AEA H QC U-234 by AEA	13966-29-5 15117-96-1 24678-82-8 13966-29-5	U1.0e-03 2.0e-02 3.3e-03	n/a 0.000 0.003	RPD RPD pCi/g	07/20/06 07/20/06 07/20/06	0.000 0.000 -10.000	20.000 20.000 1000.000	•	

SDG Number: 20060704

Matrix: SOLID

Test: Plutonium Isotopics by AEA

SAF Number: R06-013

Sample Date: Receive Date:

QC Type	Analyte	CAS#	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ	
BATC!	H QC Pu-238 by AEA	13981-16-3	U-5.0e-4	n/a	pCi/g	07/20/06	-10.000	1000.000		
BLANK	Pu-239/240 by AEA Pu-239/240 by AEA	PU-239/240 PU-239/240	2.0e-03 2.6e+01	0.002 101. 2 07	pCi/g % Recov	07/20/06 07/21/06	-10.000 75.000	1000.000 125.000		

SDG Number: 20060704 Matrix: SOLID Test: Americium by AEA

SAF Number: R06-013

Sample Date: Receive Date:

QC Type	Analyte	CAS#	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ	
BATCH	H QC							1000 000		
BLANK	Am-241 by AEA	14596-10-2	3.0e-03	0.003	pCi/g	07/20/06	-10.000	1000.000		
LCS	Am-241 by AEA	14596-10-2	2.6e + 01	108.108	% Recov	07/20/06	75.000	125.000 .		

SDG Number: 20060704

Matrix: SOLID

Test: Plutonium Isotopics by AEA

SAF Number: R06-013 Sample Date: 04/11/06 Receive Date: 07/03/06

QC						Analysis	Lower	Upper	
Туре	Analyte	CAS#	QC Found	QC Yield	Units	Date	Limit	Limit	RQ
Lab ID BATCI	9: W060001851 H QC ASSOCIATED	WITH SAMPLE							
DUP	Pu-238 by AEA	13981-16-3	U4.7e-02	n/a	RPD	07/27/06	0.000	20.000	
DUP	Pu-239/240 by AEA	PU-239/240	U4.7e-03	n/a	RPD	07/27/06	0.000	20.000	
BATCI	H QC								
BLANK	Pu-238 by AEA	13981-16-3	U-2.9e-02	n/a	pCi/g	07/27/06	-10.000	1000.000	
BLANK	Pu-239/240 by AEA	PU-239/240	1.2e-02	0.012	pCi/g	07/27/06	-10.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	2.6e + 01	101.207	% Recov	07/27/06	75.000	125.000	

SDG Number: 20060704

Matrix: SOLID

Test: Americium by AEA

SAF Number: R06-013 Sample Date: 04/11/06 Receive Date: 07/03/06

QC Type	Analyte	CAS#	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID:		WARE CARDIE							
BATCH	QC ASSOCIATED Am-241 by AEA	14596-10-2	U2.3e-02	n/a	RPD	07/27/06	0.000	20.000	
ВАТСН	I QC								
BLANK	Am-241 by AEA	14596-10-2	U3.1e-02	n/a	pCi/g	07/27/06	-10.000	1000.000	
LCS	Am-241 by AEA	14596-10-2	2.4e+01	108.108	% Recov	07/27/06	75.000	125.000	

13qlog v1 31-jul-2006 12:56:17

W13q Worklist/Batch/QC Report for Group# 20060704

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
29109 29109 29109 29109 29109 29109	2 3 4 5	29476 29476 29476 29476 29476 29476	33397 33397 33397 33397	BLANK LCS DUP SAMPLE DUP SAMPLE	W060001851 W060001851 W060001852 W060001852	Uranium Isotopics by AEA
29111 29111 29111	2	29478 29478 29478	33398	BLANK LCS SAMPLE	W060001852	Plutonium Isotopics by AEA Plutonium Isotopics by AEA Plutonium Isotopics by AEA
29112 29112 29112	2		33399 33399 33399	BLANK LCS SAMPLE	W060001852	Americium by AEA Americium by AEA Americium by AEA
29200 29200 29200 29200	2 3	29567 29567 29567 29567	33472 33472	BLANK LCS DUP SAMPLE	W060001851 W060001851	Plutonium Isotopics by AEA Plutonium Isotopics by AEA Plutonium Isotopics by AEA Plutonium Isotopics by AEA
29202 29202 29202 29202	2	29568 29568 29568 29568	33473 33473	BLANK LCS DUP SAMPLE	W060001851 W060001851	Americium by AEA Americium by AEA Americium by AEA Americium by AEA

M8141-SLF-06-199

ATTACHMENT 3

SAMPLE RECEIPT INFORMATION

Consisting of 3 pages Including cover page

Waste Sampling and Characterization Facility

P.O. BOX 1970 S3-30, Richland, WA 99352 PHONE: (509) 373-7004/FAX: (509) 373-7134

ACKNOWLEDGMENT OF SAMPLES RECEIVED

File 57/18/06 Fed

PROJECT HANFORD MANAGEMENT COMPANY

Customer Code: PHMC-MISC

RICHLAND, WA 99354

PO#: 121600/ES20 Group#: 20060704

Attn: DL Klages

The following samples were received from you on 07/03/06. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for

using W	aste Sam	pling and Characterization Facility.	201
ample#	Sample	Id Matrix Tests Scheduled	Sample Date
060001852	B1J373-	@AEA-30	04/11/06 04/11/06
		Test Acronym Description	
Test Ac	ronym	Description	
@AE	A-30 A-31 A-32	Plutonium Isotopics by AEA Americium by AEA Uranium Isotopics by AEA	

	Linni Davibia TUC:		1		CHAIR OF CUSIO	NT / DAMPLE ANALTOLD KE	ĮUES I	ES1 R06-013-009 PAGE		
COLLECTOR HOGAN, JG	—	/18/0	1	NY CONTACT	1	TELEPHONE NO. 373-6312	PROJECT COORDINATOR TRECHTER, JE	PRICE CODE 8C	DATA ." TURNAROUND	
SAMPLING LOCATI		1810	<u> </u>	T DESIGNATI			SAF NO.	AIR QUALITY	15 Days / 🛴	
U-8 Trench	ON					etween 216-U-8 and 216-U-12	R06-013		15 Days	
ICE CHEST NO.				OGBOOK NO.	<u></u>	COA	METHOD OF SHIPMENT		·	
			DTS-SA	WS-H99		121600ES20	GOVERNMENT VEHICLE			
SHIPPED TO		 -	OFFSIT	E PROPERTY N	NO.		BILL OF LADING/AIR BILL	NO.		
Waste Sampling & C	haracterization		N/A				N/A			
MATRIX* OL = OTHER LIQUID OS = OTHER SOLID S = SOIL	SPECIAL HANDLIN				POSSIBLE SAMPI	LE HAZARDS/ REMARKS				
W = WATER SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	· -	ANALYSIS		PRESERVATION	
B1J2T3-A	W060001851	S	4-11-06	1230	3X60mL G/P	Isotopic Plutonium (Pu-238, P 241 (Am-241)	- None			
B1J373-A	WULCOUS SZ	S	1	1140	3X60mL G/P	Isotopic Plutonium (Pu-238, P 241 {Am-241}	Pu-239/240} Isotopic Uranium {U-	-233/234, U-235, U-238} Americiun	- None	
CHAIN OF POSSE	SSION			SIGN/ PRINT	T NAMES		SPECIAL INSTRUCTION			
J. G. HOGA! RELINQUISHED BY/F	1 X T HOW	70	7-3-06-024	RECEIVED BY/	1	DATE/TI Les Figer 7-3-06 0 DATE/TI	taken using the multi entire sample provid	same as GPP, including QC. Al ple-increment sampling progra ed in each bottle to be used in	n. This requires the	
RELINQUISHED BY/F	EMOVED FROM		DATE/TIME	RECEIVED BY/	STORED IN	DATE/TI	ME			
RELINQUISHED BY/	REMOVED FROM		DATE/TIME	RECEIVED BY/	STORED IN	DATE/TI	ME			
LABORATORY O SECTION	RECEIVED BY		<u> </u>		· · · · · · · · · · · · · · · · · · ·	ונן	TLE	D.	ATE/TIME	
MINAL SAMPLE DISPOSITION	DISPOSAL METHOD		· - - · ·			DI	SPOSED BY	D	TE/TIME	